

TABLE 2

**Worldwide, domestic, and foreign R&D paid for by the company and others and performed by the company, by industry and company size: 2019**

(Millions of U.S. dollars)

Industry and company size	NAICS code	Worldwide R&D performance			Domestic R&D performance			Foreign R&D performance		
		Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others	Total	Paid for by the company	Paid for by others
All industries	21–23, 31–33, 42–81	597,420	522,912	74,508	492,956	428,968	63,989	104,464	93,944	10,519 i
Manufacturing industries	31–33	350,024	311,115	38,909	285,674	248,109	37,564	64,351	63,006	1,345
Food	311	5,015	4,770	245	4,180	3,937	243	835	833	2
Beverage and tobacco products	312	1,755	1,644	111 i	1,082	971	111 i	674	674	0
Textile, apparel, and leather products	313–16	1,061	1,030	31	904	873	31	157	157	0
Wood products	321	193	187	6	186	180	6	7	7	0
Paper	322	1,165	1,165	*	1,064	1,064	*	101	101	* i
Printing and related support activities	323	429 i	429 i	0	420 i	420 i	0	9 i	9 i	0
Petroleum and coal products	324	1,477 - 1,481	1,375	102 - 106	1,306	1,203	103	171 - 176	172	0 - 3 i
Chemicals	325	115,631	105,612	10,020	97,063	87,288	9,775	18,568	18,323	245
Basic chemicals	3251	3,102	2,938	164	2,360	2,198	162	742	740	2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,695	1,609	85	1,172	1,092	80	523	518	5
Pesticide, fertilizer, and other agricultural chemicals	3253	2,272 - 2,297	1,932	340 - 365	1,822 - 1,846	1,501	320 - 345	450	431	20
Pharmaceuticals and medicines	3254	103,487	94,306	9,181	87,619	78,652	8,966	15,868	15,654	214
Soap, cleaning compound, and toilet preparation	3256	3,517	3,354	164	2,760	2,596	164	757	757	0
Paint, coating, adhesive, and other chemicals	3255, 3259	1,532 - 1,560	1,473	59 - 87	1,305 - 1,333	1,249	56 - 84	227	224	4
Plastics and rubber products	326	3,359	3,265	94	2,856	2,770	85	503	494	9
Nonmetallic mineral products	327	1,701 i	1,665 i	35	1,508 i	1,473 i	35	192 i	192 i	0
Primary metals	331	740	722	19	665	649	16	76	73	2
Fabricated metal products	332	3,163	2,899	264	2,885	2,632	254	278	267	11
Machinery	333	19,435	18,147	1,288	15,184	13,930	1,254	4,251	4,218	34
Agricultural implement	33311	2,778	2,768	11	1,921	1,913	9	857	855	2 i
Semiconductor machinery	333242	5,374	4,750	623	4,459	3,854	604	915	896	19
Engine, turbine, and power transmission equipment	3336	1,931	1,715	216	1,301	1,096	205	630	619	11
Other machinery	other 333	9,353	8,915	438	7,503	7,067	436	1,850	1,848	1 i

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Computer and electronic products	334	112,180	100,510	11,671	86,729	75,570	11,159	25,452	24,940	512
Communications equipment	3342	15,907 - 15,912	14,804	1,103 - 1,107	12,595	11,495	1,100	3,312 - 3,316	3,309	3 - 7
Semiconductor and other electronic components	3344	48,189	44,784	3,405	35,183	31,975	3,208	13,007	12,809	198
Navigational, measuring, electromedical, and control instruments	3345	21,512	14,573	6,939	17,562	10,912	6,650	3,950	3,661	288
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,621	4,393	229	3,342	3,117	225	1,280	1,276	3
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	10,541	4,021	6,520	9,662	3,400	6,262	878	621	258
Other measuring and controlling device	other 3345	6,350	6,160	191	4,558	4,395	163	1,792	1,764	28
Other computer and electronic products	other 334	26,567 - 26,571	26,348	220 - 223	21,388	21,188	201	5,179 - 5,183	5,160	19 - 22
Electrical equipment, appliances, and components	335	7,006	6,599	407	5,263	4,886	377	1,743	1,713	30
Transportation equipment	336	53,187	38,868	14,319	45,375	31,505	13,870	7,812	7,363	449
Motor vehicles, bodies, trailers, and parts	3361-63	31,110	27,550	3,559	24,117	20,883	3,233	6,993	6,667	326
Aerospace products and parts	3364	18,943	9,392	9,551	18,358	8,900	9,458	585	493	93
Aircraft, aircraft engine, and aircraft parts	336411-13	17,476	8,833	8,643	16,891	8,341	8,550	585	492	93
Guided missile, space vehicle, and related parts	336414-15, 336419	1,467	559	908	1,467	559	908	*	*	0
Military armored vehicle, tank, and tank component	336992	35	25	10	35	25	10	0	0	0
Other transportation	other 336	3,099	1,901	1,198	2,865	1,697	1,168	234	204	30
Furniture and related products	337	444	442	2	409	407	2	35	35	0
Miscellaneous	339	22,077 - 22,084	21,786	292 - 298	18,596	18,352	244	3,482 - 3,488	3,434	48 - 54
Medical equipment and supplies	3391	19,083	18,835	248	16,014	15,812	202	3,069	3,023	46

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Other miscellaneous manufacturing	3399	2,995 - 3,002	2,951	44 - 50	2,582	2,540	42	413 - 419	411	2 - 8
Nonmanufacturing industries	21-23, 42-81	247,396	211,797	35,600	207,283	180,858	26,425	40,113	30,939	9,175 i
Mining, quarrying, oil and gas extraction, and support activities	21	3,307	3,096	211	2,717	2,535	183	589	561	28 i
Utilities	22	284	246	38	275	237	38	9	9	0
Wholesale trade	42	1,304	1,217	87	1,191	1,104	87	113	113	0
Electronic shopping and electronic auctions	454111-12	3,200 - 20,013 i	3,157 - 19,970 i	43 - 61	3,131 - 15,818 i	3,088 - 15,775 i	43 - 61	69 - 4,198 i	69 - 4,198 i	0
Transportation and warehousing	48-49	9,952 i	9,566 i	386	9,890 i	9,504 i	386	62	62	0
Information	51	129,277	128,064	1,213	110,227	109,062	1,165	19,051	19,002	48
Publishing	511	39,968	39,348	620	33,019	32,447	572	6,949	6,901	48
Newspaper, periodical, book, and directory publishers	5111	61	61	*	61	61	*	0	0	0
Software publishers	5112	39,907	39,287	620	32,958	32,386	572	6,949	6,901	48
Telecommunications	517	3,856	3,823	33	3,733	3,700	33	124	123	*
Data processing, hosting, and related services	518	36,449	36,045	404	30,558	30,154	404	5,891	5,891	* i
Other information	other 51	49,004	48,849	155	42,917	42,761	155	6,087	6,087	0
Finance and insurance	52	10,092	9,982	110	8,917	8,890	28	1,175	1,092	83
Real estate and rental and leasing	53	1,476	1,476	0	1,371	1,371	0	104	104	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	48	48	0	45	45	0	4	4	0
Other real estate and rental and leasing	other 53	1,427	1,427	0	1,326	1,326	0	101	101	0
Professional, scientific, and technical services	54	68,023	34,908	33,115	53,233	29,131	24,103	14,790	5,778	9,012 i
Architectural, engineering, and related services	5413	4,244	2,323	1,921	4,207	2,288	1,919	37	35	2
Computer systems design and related services	5415	26,416	23,689	2,727	21,046	18,395	2,651	5,370	5,294	76
Scientific research and development services	5417	30,675	3,364	27,311 i	21,669	3,265	18,403	9,006 i	99	8,908 i
Research and development in biotechnology	541711	9,250	1,129	8,121	6,457	1,083	5,374	2,793	46	2,748

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Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	20,651 i	2,206	18,444 i	14,446 i	2,155	12,291 i	6,205 i	51	6,153 i
Research and development in the social sciences and humanities	541720	774	29	745	766	27	738	8	1	7
Other professional, scientific, and technical services	other 54	6,688	5,532	1,156	6,312	5,182	1,129	376	349	27
Health care services	621-23	2,289	1,952	338	2,265	1,928	337	24	23	* i
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,382 - 18,191	1,322 - 18,133	37 - 62	1,380 - 14,067	1,322 - 14,012	34 - 58	2 - 4,124	0 - 4,121	3
All companies (number of domestic employees)	-	597,420	522,912	74,508	492,956	428,968	63,989	104,464	93,944	10,519 i
Small companies										
10-19 <sup>a</sup>	-	5,639	4,560	1,079	5,501	4,432	1,070	138	128	10
20-49	-	12,875	10,484	2,392	12,418	10,040	2,378	457	443	14 i
Medium companies										
50-99	-	14,758	12,165	2,593	14,021	11,492	2,529	737	674	64
100-249	-	21,986	18,498	3,487	19,793	16,520	3,274	2,192	1,979	214
Large companies										
250-499	-	21,592	17,995	3,597	18,883	15,356	3,527	2,709	2,639	70
500-999	-	26,922	24,356	2,566	23,969	21,549	2,420	2,953	2,807	146
1,000-4,999	-	92,224	80,615	11,609	75,671	64,475	11,196	16,553	16,140	413
5,000-9,999	-	62,775	54,556	8,220	50,811	44,728	6,083	11,965	9,828	2,137 i
10,000-24,999	-	111,876	92,569	19,307 i	88,263	74,385	13,878 i	23,612	18,183	5,429 i
25,000 or more	-	226,773	207,115	19,658	183,626	165,991	17,635	43,148	41,124	2,024

\* = amount &lt; \$500,000; i = &gt; 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

<sup>a</sup> The Business Enterprise Research and Development Survey does not include companies with fewer than 10 domestic employees.**Note(s):**

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. This change has affected the comparability of these estimates with estimates published for years prior to 2018. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2019.